

BEFORE THE INDEPENDENT COMMISSIONERS

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER a submission on the Proposed Canterbury
Land and Water Regional Plan

**EVIDENCE OF SRI SAMANTHA DEWI HALL ON BEHALF OF
ASHBURTON DISTRICT COUNCIL**

Dated 13 MAY 2013

Qualifications and Experience

1. My full name is Sri Samantha Dewi Hall. I have over 16 years' experience in planning and resource management.
2. I hold a Master of Science (Hons.) in Geography from the University of Canterbury and a Diploma in Business in Human Resources Management from the Christchurch Polytechnic, Institute of Technology.
3. I am a Principal Environmental Consultant with Opus International Consultants Ltd and have held this role since February 2012. In my current role, I am predominantly involved in the resource management of water related projects.
4. Prior to this, I worked for the London Borough of Lambeth, United Kingdom, as a Senior Planner between 2006 and 2011, and in various planning roles for Environment Canterbury between 1996 and 2006.
5. In my role as a Consents Team Leader for Environment Canterbury, I had delegated authority to decide resource consent applications, particularly for water permits and land use consents.

Expert Witnesses Code of Conduct

6. I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Introduction

7. This evidence is set out in two parts.
8. The first part of this evidence sets out some background to the operation of the stockwater race network and main findings of an investigation into the network¹ of which I was co-author. The study considered whether any water could be made available through water efficiency improvements and how that water could be used elsewhere within the District.
9. The second part of this evidence sets out the work the Ashburton District Council (Council) has carried out since their submission on the proposed Land and Water Regional Plan 2012 (LWRP) and the decision sought with respect to Policy 13.4.1.
10. While Council supports the environmental objective of Policy 13.4.1, the vast area of the stockwater network means that 1 July 2015 is not a timeframe within which any significant water savings can be achieved.
11. It is noted at this point that the Council also made a submission to Policy 13.4.7 of the proposed LWRP requesting an additional clause to exempt the stockwater network and community water supplies from a minimum flow restriction. The comments in Environment Canterbury's s42A report with respect to the requirement of an operative water supply strategy under Rule 5.88 are noted.
12. The Council wishes to emphasise that any minimum flow restriction imposed on any stockwater network or community water supply would have significant implications

¹ Water Investigation Project, Opus International Consultants Ltd, 2012

for the servicing of customers and operation of the service , for example, reduced flows may cause open races to become vulnerable to drying and cracking, increasing infiltration of water. No further decision is sought with respect to this policy.

Background

Description of the Stockwater Race Network

13. The very first stockwater races were constructed in the 1860's. By 1915, the main sections of today's stockwater race network were significantly finished.
14. The Council open race network is the largest stockwater network in Canterbury, servicing an area of the Canterbury Plains from the Rakaia River in the north to the Rangitata River in the south.
15. The stockwater network is primarily a gravity fed open race system, although there are a number of areas serviced by piped systems (Methven/Springfield and Montalto) which also provide potable water.
16. The network comprises an area of approximately 233,000 ha, serving approximately 1,800 individual customers.
17. There are approximately 2,400 km of water races, made up of 472 km of main races and 1,927 km of minor races.
18. There are 27 intakes, including one from the Rangitata Diversion Race at Klondyke and the Acton intake which is operated and managed by Acton Irrigation Ltd. Ten of these abstractions are from Hakatere/Ashburton River system.
19. There are long distances between the head of the race and the various discharge points. These long distances require a sufficient head of water to ensure stockwater can reach customers at the ends of the network.
20. There are over 100 discharge points into river beds, drains, soak pits and the coastal marine area at the distal end of the various race networks. The discharges of unused water are commonly of a maximum rate of 10 L/s.
21. Due to the way that stockwater race systems operate, a 10% change to the flow rate in the headwater race may equate to a 50% change in flow within a minor race at the distal end of the network towards the coast.
22. One third of the network has been closed in the last 8 years equivalent to approximately 1,200km and race closures are continuing.
23. Resource consents were granted in February 2012 for a total take of 8,281 L/s for the stockwater network for a duration of 20 years.

Water Abstraction

24. The total abstraction across the network is 8,281L/s, with 5,355 L/s from the Ashburton catchment.
25. The maximum consented take reflects the maximum amount of water that is required under the most extreme circumstances and the need for security of supply while avoiding breaching consent conditions.
26. During the peak summer months, abstraction equates to the maximum consented rate due to high stockwater demand with less water taken in winter.

27. However, in general, less water is taken than consented. The mean abstraction rate for each of the largest intakes ranges between approximately 50% to 70% of the maximum consented rate.
28. Reducing the maximum consented abstraction would not result in significant change in the amount of water remaining in the various rivers and streams for the majority of the time, effectively releasing 'paper water'.

Stockwater Use

29. Only about 4% of the water passing into the stockwater scheme is used as stock drinking water and another 5% for domestic uses. The bulk of the water in the race network is lost to infiltration.
30. As a summary, the water balance of the network is as follows:
 - Stock use 4%
 - Domestic use 5%
 - Evaporation: 1%
 - Transpiration 3%
 - Discharge 5%
 - Infiltration 82%

Available Water

31. If the stock drinking water could be delivered with 100% efficiency, the actual water needs of stock and domestic requirements within the network area could be met with a total flow of approximately 745 L/s, with 485 L/s from the Hakatere/Ashburton River catchment.
32. As the existing abstraction is significantly greater than the amount required only to support stock, there is clearly water available which could support alternative activities if the stockwater could be delivered more efficiently.

Potential Improvements to the Network

33. A number of potential improvements to the network were considered. However, only small gains in efficiency are possible without converting the open races to a piped system.
34. Low flow trials reveal that the network is not viable at reduced flow as water will not make it to the extremities of the network and service will be lost within two to three weeks.
35. Integrating stockwater with irrigation networks is possible although there are some constraints.

Alternative Sources of Water

36. A number of alternative sources of water to supply stockwater were considered. The only viable and sustainable alternative to the existing surface water takes is deep groundwater which can provide a reliable supply of suitable quality.
37. Sourcing deep groundwater for stockwater will have significant cost and programming implications, and will require a piped conveyance system.

Potential Impacts arising from Stockwater Race Closures

38. The network is considered economically efficient and provides opportunities for a wide range of environmental benefits including habitat biodiversity and groundwater recharge.
39. The following impacts need to be assessed and considered as races are closed:
 - Reduction in groundwater recharge arising from the loss of water infiltration from the open races with impacts on shallow bores.
 - Loss of habitat and aquatic and terrestrial species within the races including the native and endangered Canterbury mudfish.
 - Loss of amenity.

Potential Uses of Available Water

40. A key output of the project was to identify potential uses of any water that could be made available. Benefits of making water available could include:
 - Increasing the area of land irrigated and therefore, production.
 - Leaving or returning some of the water back to its original source, other sensitive areas or environmental enhancement.
 - Biodiversity initiatives/enhancements.
 - A combination of the above.
41. If the network was piped, approximately 2,380 L/s of water could be available from the Hakatere/Ashburton catchment.
42. The cost of piping stockwater to make this water available is \$36m and up to \$56m for the entire network, including on-farm costs. If surface water was surrendered and the stockwater service maintained, it would be necessary for the Council to recover this piping cost.
43. Irrigation use is the only use with potential to generate revenue to offset the costs of piping the network.
44. This quantity of water could irrigate up to 5,140 ha of land with a productive value of \$2,100/ha/annum.

Conclusions

45. In order to make water available and to surrender water to the Hakatere/Ashburton River, the open race network or at least part of the network will need to be piped.
46. The taking of deep groundwater could be offset by the return or surrender of the current surface water abstraction to the environment consistent with the objective of Policy 13.4.1 of the proposed LWRP and the Ashburton Zone Implementation Plan (ZIP) targets and actions.
47. The taking of groundwater to enable the surrender of surface water is supported by Policy 13.4.5 of the proposed LWRP.
48. The transfer of water by the Council to other productive users of the water could raise the necessary funds to build the piped scheme and increase productivity.

Scope of Evidence

49. Policy 13.4.1 seeks that the taking of water for community stock water supplies from the Hakatere/Ashburton River from 1 July 2015 will not exceed 2,900 L/s.

50. There are significant cost and programming implications relating to changing the open race network to a piped system to deliver the savings required by Policy 13.4.1.
51. It will not be physically or economically possible to meet the requirements of this policy by 2015 and maintain an adequate stockwater service.
52. In the Council's submission and further submission, it was sought that policy 13.4.1 be removed from the proposed LWRP in its entirety.
53. The Council supports in principle the objective of Policy 13.4.1 to reduce the taking of water for community stockwater supplies but considers the timeframe of 1 July 2015 a significant constraint in achieving this.
54. The Ashburton Zone Committee is a joint committee of Environment Canterbury and the Council. As co-convenor of this Committee, the Council has been a party to the formulation of the flow regime for the Hakatere/Ashburton River set out in Chapter 13 of the proposed LWRP and therefore supports the overall objective to increase flows in the River.
55. The Council's primary objectives with respect to the stockwater system are:
 - To continue to work with Environment Canterbury and the Ashburton Zone Committee to reduce stockwater abstractions from the Hakatere/Ashburton River and contribute to the proposed increased minimum flows.
 - To continue providing the stockwater service where the service is required by customers.
 - Achieve biodiversity opportunities within the races and other objectives as identified in the Ashburton ZIP.
 - To achieve the Canterbury Water Management Strategy (2009) target of increasing the area of land irrigated.
56. To assist the work of the Ashburton Zone Committee, the Council undertook the 'Water Investigation Project'² to investigate whether any water could be made available through water efficiency improvements, primarily within the stockwater network. It also considered how that water could be used elsewhere within the District to help achieve the objectives of the Ashburton Zone Committee's ZIP.
57. The study found that piping the network is the only practical option to achieve the water savings needed and this cannot be achieved by 1 July 2015 as required by Policy 13.4.1.
58. While the stockwater network is an opportunity to meet both regional and local environmental objectives, time is needed to confirm the stockwater demand, to identify the piping requirements and develop a programme of work.
59. Since lodgement of Council's submission, the Council has worked with the Zone Committee to find an alternative wording for Policy 13.4.1 which would acknowledge the immense work involved to gain real efficiencies in water and the timeframe required to deliver this.
60. The Council proposed to the Zone Committee a stepped reduction in abstraction and timeframe, of taking no more than 4,100 L/s by 2018 and 2,900 L/s by 2023, as follows:

² Opus International Consultants Ltd, 2012

- (a) *The Ashburton District Council continues to work with the Regional Council to develop and implement a programme of work, reviewed regularly, to reduce the surface water take from the Ashburton River to 2,900 L/s by 30 June 2023,*
- (b) *The taking of water for community stockwater supplies from the Ashburton River will not exceed 4,100 L/s by 2018 and 2,900 L/s by 2023, provided that,*
- (i) *in accordance with Policy 13.4.5, the consent holder is able to abstract groundwater at a rate of 1,255 L/s by 2018 and 2,455 L/s by 2023 to enable the surrender of the equivalent quantity of surface water to the Ashburton River catchment, and*
- (ii) *groundwater can be transferred in full to another water user which may or may not include a storage component.*

61. These dates were considered to represent middle ground between 1 July 2015 as required by Policy 13.4.1 and the 20 year duration of the existing resource consents. These timeframes were put forward to the Zone Committee and while it is acknowledged that these dates may delay targets set out in the flow regime, they still provided some level of certainty.
62. The proposed wording also sought to secure a programme of work, access to groundwater to enable the surrender of the current surface water consents and transfer of that water to other water users.
63. The Zone Committee was concerned with the length of the proposed timeframe but considered a programme of work was key to ensuring progress. On this basis, the Committee supported a rewording of Policy 13.4.1 as follows:
- The Ashburton District Council continues to work with the Regional Council to develop and implement a programme of work, reviewed regularly, to reduce the surface water take for community stockwater supplies from the Ashburton River to no more than 2,900 L/s as soon as possible.*
64. Replacing '1 July 2015' with 'as soon as possible' would remove the concern for the Council but would promote the need to actively advance towards the end goal of reducing the current abstraction from the Hakatere/Ashburton River. The minutes of this meeting are attached.
65. Following this decision by the Zone Committee, the wording was agreed by Council resolution, as attached.
66. It is noted that the abstraction of groundwater for the surrender of surface water is supported by Policy 13.4.5 and the transfer of water is provided for as a restricted discretionary subject to certain conditions being met. No further decision is sought in respect of these aspects.

Current Position

67. To support the reduction in abstraction required by Policy 13.4.1, the Council has identified and is committed to undertake the following tasks as part of a work programme towards delivery of a piped or partially piped network:
- Survey network users and determine requirements. As at the date of submission of this evidence, this survey was well underway, with surveys sent to 2030 properties owned by approximately 1,800 landowners and 1,200 responses received, comprising a 60% response rate. The results will be analysed and will identify the spatial need for stockwater, so that options can be identified.

Mapping the stockwater need will help identify opportunities and this will depend on whether the need is scattered across the District or whether there are distinct clusters. A report on the results of the survey is due at the end of June 2013.

- Identify the extent of the stockwater network required to service stockwater customers by December 2013.
- Continue/initiate discussions with all irrigation companies and Rangitata Diversion Race Management Limited (RDR) to explore combining stockwater with their piped irrigation networks by December 2013.
- Carry out ecological assessments of the races to identify areas of high biodiversity value and as required by existing resource consents by February 2014.
- Review and refine the water investigation study including identification of physical works and cost implications to continue to provide stockwater – ongoing.
- Investigate revenue generation opportunities from water transfers by May 2014.
- Continue to work with ECan and the Zone Committee on ZIP tasks - ongoing.
- Carry out the required and approved physical works. The works will need to be programmed subject to the extent and costs of the work being identified, consultation and Council approval.

68. Time is required to progress the work identified above.

69. The proposed LWRP acknowledges that environmental objectives for the Hakatere/Ashburton River cannot be achieved immediately, seeking changes over time so that there will be minimal impact on existing activities.

70. The timeframe of 1 July 2015 as required by Policy 13.4.1 to achieve the reduced flow would have a significant impact on the existing operation of the network.

71. The only option to achieve the required savings will be a piped network and the work required to deliver this will take much longer than the remaining 24 months to achieve the policy.

72. In consideration of the need to undertake the above identified work and the normal programming, budgeting, consultation, design, tender and construction phases for such work, a ten year timeframe would be more realistic and achievable, particularly in light of the vast area involved and current construction pressures in Canterbury. However, it is hoped some savings could be achieved before this. It is noted that this timeframe is consistent with Council's initial rewording of Policy 13.4.1 to include stepped timeframes and therefore some certainty.

73. The Council considers the stockwater network an opportunity to meet regional and local objectives but needs time to:

- Develop the necessary plans and strategies to facilitate making water available.
- Continue working with Environment Canterbury and the Ashburton Zone Committee to identify revenue opportunities to offset costs and deliver the water savings.
- Develop a programme and budget to carry out agreed/approved works.

Decision Sought

74. As a consequence of the above, the Ashburton Zone Committee supports an alternative wording for Policy 13.4.1 and key to achieving this is a programme of work that can be agreed with Environment Canterbury and the Zone Committee.
75. The Council requests removal of Policy 13.4.1 and replacement wording as supported by the Zone Committee:
76. *The Ashburton District Council continues to work with the Regional Council to develop and implement a programme of work, reviewed regularly, to reduce the surface water take for community stockwater supplies from the Hakatere/Ashburton River to no more than 2,900 L/s as soon as possible.*



Sri Samantha Dewi Hall
13 May 2013

3. Ashburton Water Management Zone Committee

Minutes of the **Ashburton Water Management Zone Committee** meeting held at the Methven Heritage Centre, 160 Main St, Methven on Tuesday 26 February 2013, commencing at 9.05 am.

Present

Matthew Hall (Chair), Neil Brown, David Caygill, Ben Curry, Donna Field (9.26am), Gordon Guthrie, Arapata Reuben, Greg Roadley, Karl Russell (10.14am), Sheryl Stevens.

Also in attendance: Barbara Nicholas (CW Facilitator); Jo Naylor (ADC – minutes); Sarah Hunt, Don Vattala, Geoff Thompson, Darren Leftley, Dennis Jamieson, Melanie Burns, Jen Bestwick (Environment Canterbury).

Present for the duration of their reports: Rob Rouse, Crissie Drummond (Ashburton District Council); Sri Hall (Opus Consultants).

Seven members of the public attended the meeting.

1 Apologies

For lateness - Donna Field.

2 Extraordinary Business

Nitrates levels affecting farm pits.

3 Confirmation of Minutes

Amendment: Don Vattala was in attendance. Karl Russell was not.

That the minutes of the Ashburton Water Management Zone Committee meeting held on Tuesday 29 January 2013 be confirmed subject to amendments.

Caygill/Curry

Carried

3.1 Matters Arising

- Wetland inventory will be re-circulated.

4 Correspondence

Nil

5 Ashburton District Council Stock Water Investigation Project

(Rob Rouse and Sri Hall)

That the Ashburton Water Zone Committee supports the rewording of Policy 13.4.1 in the proposed Land and Water Regional Plan to read:

“The Ashburton District Council continues to work with the Regional Council to develop and implement a programme of work, reviewed regularly, to reduce the surface water take for community stockwater supplies from the Ashburton River to no more than 2,900 L/s as soon as possible”.

Caygill / Guthrie

Carried.

The committee would like to see an outline of the steps that need to be taken between now and 2023 in order to make this progress. ADC will be working with Environment Canterbury and the Zone Committee to develop the tasks and process.

Committee has concerns with timeframe of ten years. ADC is unsure how long it will take until the groundwork is done to develop the requirements but believe that this is a realistic timeframe. Physical works will take a considerable time.

Concern with option of privatisation of stockwater if it were to be contracted to irrigation companies etc. This could possibly bring risks of excessive pricing making it unrealistic for some people to access. ADC confirmed that they will definitely be talking with irrigation companies however for options.

Survey of existing customers is probably the key point in the first instance. Consider that this will take 6-12 months. Getting information back from landowners will be the most time consuming. Will require some negotiation with customers, legislative procedure to follow and planning to undertake. Estimate 1 – 2 years for base information to be collected and planning to be undertaken, then the remainder of time for the physical works.

Donna Field attended the meeting at 9:26am.

Discussion surrounding taking the corresponding amount of water from ground water to compensate for surrendered surface water. Some concern that there may not be the water available. ADC needs this water to generate funds to fund the physical works.

Still have the consent as insurance to provide stockwater.

Primarily ADC is seeking support in principle to the submission.

Would expect to have a work programme in place within approx. 12 months with dates with much more clarity.

Some agreement that “B” is a step too far for the committee to support at this time. If there was a work programme in place then maybe the committee would be able to.

Modelling work has been done on the expectation that there will be 6 cumecs at the bridge and later 10 cumecs. If transferring to groundwater, this will take the groundwater that we want other surface water users to transfer. If they are unable to take groundwater, then this will mean no greater improvement for the water levels.

Cr Brown said that if wanting to achieve A, then need some part of B, otherwise you won't achieve A.

Karl Russell attended the meeting at 10:14am

Council will begin the survey as soon as possible. Have already made budget provisions for this work.

6 Resource Management Group update (10.17am)

(Melanie Burns, Geoff Thompson)

Melanie presented a power point.

The meeting adjourned at 10:35am for morning tea and resumed at 10.52am.

7 CWMS Review

(Christina Robb)

Feedback should be by email to Barbara Nicholas and the committee and will be brought back to the next meeting. This will be revisited at the next meeting.

8 Next meeting

The next meeting of the Ashburton Water Zone Committee will be held on Tuesday 19 March 2013 at the Hinds Community Centre.

The meeting closed at 10.56 am.

Ashburton District Council
28 February 2013

District Water Investigation Project

That Council approves the lodging of a formal request to Environment Canterbury to reword Policy 13.4.1 in the proposed Land and Water Regional Plan to read:

"The Ashburton District Council continues to work with the Regional Council to develop and implement a programme of work, reviewed regularly, to reduce the surface water take for community stockwater supplies from the Ashburton River to no more than 2,900 L/s as soon as possible."

Mayor/Brown

Carried